

Exam 1
Economics and Ecommerce
14.27, Fall 2014

Instructions: This exam is closed-book and closed-notes. You have approximately 85 minutes in which to complete the exam. (Note that the exam is out of 85 points to help you budget your time.) Keep your explanations to all questions **very brief**. Good luck!

1. (28 pts.) T,F,U with explanation: (Be as specific as possible but keep explanations to **one or two sentences** or you will receive no credit):

a) The Hotelling and Salop models are not particularly relevant to the study of online commerce because the internet effectively eliminates geographic differentiation.

b) Auctions, first invented by the popular auction house Sotheby's, have been growing in popularity ever since.

c) We would expect large buyers to be able to use their clout in the market to extract discounts from suppliers.

d) The U.S. Census Bureau performs the Economic Census every ten years and gathers data on all publicly-traded companies operating in the U.S.

e) The Bertrand model helps explain the significant price dispersion we see in both online and brick and mortar markets.

f) In the basic model of monopoly pricing, firms consider the impact that their pricing decision has on their rivals.

g) Empirical evidence on market leadership can give us some information on whether entry costs tend to increase or decrease for subsequent entrants in a market.

2. (24 pts.) Suppose there are two internet sellers of identical bulk chocolate, chocoplanet.com (firm 1) and chocolatenation.com (firm 2). They use a common wholesaler, from whom they purchase 1 kilogram blocks for \$18. They both have a

cost of fulfillment (packaging, postage, etc.), of around \$2 a kilo. Both can ramp up sales arbitrarily high without incurring extra costs. Suppose market demand in kilos comes from N consumers a day, each of whom has demand $D(P) = 3 - P/20$.

a) If customers will always buy from the cheaper seller, what are the equilibrium prices the two firms charge? Justify.

b) What are the equilibrium prices if customers do not know the prices but rather have to incur a time cost of \$1 to find out each price? What if it is only \$0.50? Justify.

Suppose, instead, that one firm specializes in dark chocolate (85% cacao) and the other in milk chocolate (45% cacao). Customers have a preference parameter x_i for percent cacao arrayed evenly between 45 and 85, inclusive, and a customer with preference x_i has a unit demand with utility $120 - (85 - x_i) - P_{Dk}$ if she buys dark and $90 - (x_i - 45) - P_{Mk}$ if she buys milk.

c) Making the standard assumptions of market coverage, calculate the equilibrium prices and quantities.

d) Comment on the difference between consumer preferences at equal prices and the market shares you found in part c). Can you say anything (speculative) about welfare in this market?

3. (15 pts.) Suppose a dealer has a used children's book from the 1950's that she wants to sell. Assume that she has no marginal cost and that she faces a market with two potential buyers whose valuations for the book are random draws from a Uniform[0, 1] distribution.

a) What is her optimal posted price and expected profit?

Imagine now that the buyers arrive sequentially, the seller knows this, and she can reoptimize price for the second buyer if she does not sell the book to the first buyer.

b) What are the optimal posted prices and expected profit now?

c) Could the seller do better running an auction each period?

4. (18 pts.) Attached you will find an article from 2013 on entrants competing with

Ebay. Read the attached article (really only need to read the first two sections) and address the following questions:

- a) Comment on entrant's idea that lowering or eliminating listing fees is a good way to attract more sellers.
- b) Explain the nature of the network externalities in this market, both positive and negative.
- c) In light of your answer to part b), comment on the strategy of entrants targeting specific categories of goods, as opposed to tackling Ebay head-on across all categories.

Have a great long weekend!

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